

Appendix F – Hydrology for Temporary Facilities

The following selection factors are rated considering their severity as 1, 2, or 3 for low, medium or high conditions.

Selection Factors

Step 1: Determine Impact Ratings

Potential Loss of Life - If inhabited structures, permanent or temporary, can be inundated or are in the path of a flood wave caused by an embankment failure, then this item will have a multiple of 15 applied. If no possibility of the above exists, then loss of life will be the same as the severity used for the A.D.T.

Property Damages - Private and public structures (houses, commercial, or manufacturing); appurtenances such as sewage treatment and water supply; utility structures either above or below ground, are to have a multiple of 10 applied. Active cropland, parking lots, recreational areas are to have a multiple of 5 applied. All other areas shall use the severity determined by site conditions.

Traffic Interruption - Includes consideration for emergency supplies and rescue; delays; alternate routes; busses; etc. Short duration flooding of a low volume roadway might be acceptable. If the duration of flooding is long (more than a day), and there is a nearby good quality alternate route, then the flooding of a higher volume highway might also be acceptable. The severity of this component is determined by the detour length multiplied by the average daily traffic projected for bi-directional travel.

Detour Length - The length in kilometers (miles) of an emergency detour by other roads should the temporary facility fail.

Height Above Streambed - The difference in elevation in meters (feet) between the traveled roadway and the bed of the waterway.

Drainage Area - The total area contributing runoff to the temporary facility, in km² (mi²).

Average Daily Traffic - The average amount of vehicles traveling bi-directional through the area in a 24-h period.

RATING SELECTION

<u>Factor</u>	<u>Rating</u>		
	1	2	3
Loss of Life	See Instructions		
Property Damage	See Instructions		
Traffic Interruptions	< 2000	2000-4000	> 4000
Detour Length, km (mi)	< 8 (< 5)	8-16 (5-10)	> 16 (> 10)
Height Above Streambed, m (ft)	< 3 (≤ 10)	3-6 (11-20)	> 6 (> 20)
Drainage Area, km ² (mi ²)	< 2.6 (< 1)	2.6-26.0 (1-10)	> 26.0 (> 10)
Rural ADT	< 400	400-1500	> 1500
Suburban ADT	< 750	750-1500	> 1500
Urban ADT	< 1500	1500-3000	> 3000

IMPACT RATING TABLE

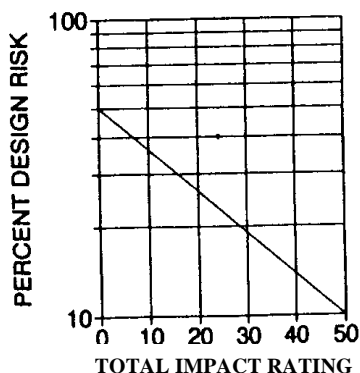
Loss of Life Rating X 15 = _____
 Property Damage Rating X 10 or X 5 = _____
 Traffic Interruption Rating = _____
 Detour Length Rating = _____
 Height Above Streambed Rating = _____
 Drainage Area Rating = _____
 Average Daily Traffic Rating = _____

 Total Impact Rating = (sum of the above) = _____

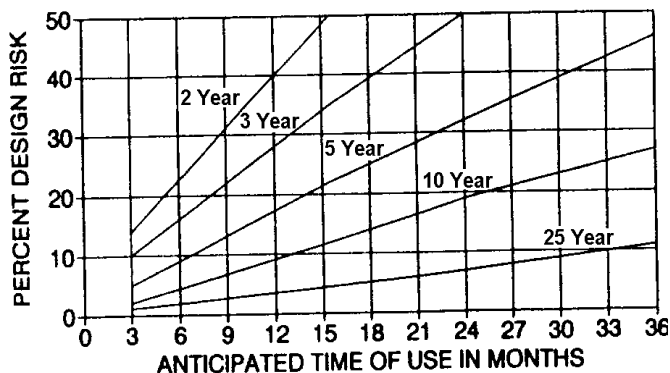
Step 2: Determine risk percentage

Step 3: Determine Temporary Design Frequency

DESIGN RISK VS. IMPACT RATING



DESIGN FREQUENCY (YEAR)



Note: If sufficient discharges have been developed either by the designer or a Flood Insurance Study then a frequency curve should be plotted to determine the Design Discharge instead of the final formula using the ratio.

Design Frequency = _____ years

Step 4: Determine Multiplying Ratio

Year	Ratio	Year	Ratio
2.0	0.8	5.0	1.4
3.0	1.2	10.0	1.9
4.0	1.3	25.0	2.7

Step 5: Determine Temporary Flow Rate
(Select the higher flow rate)

Ratio = _____ $\times 0.27 (Q_{50} \text{ _____}) = \text{_____ m}^3/\text{s} (\text{_____ cfs})$

Ratio = _____ $\times 0.20 (Q_{100} \text{ _____}) = \text{_____ m}^3/\text{s} (\text{_____ cfs})$